# The MAC Flyer

MARCH 1981

Safety Awards . . . page 4

# The MAC Flyer

## MILITARY AIRLIFT COMMAND

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For Greater Safety and Efficiency in MAC Air Operations.

MACRP 127-5 MARCH 1981 Vol XXVIII, No. 3

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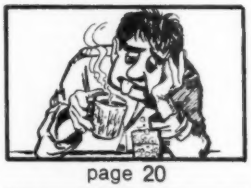

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*The MAC Flyer* is published by the Directorate of Safety, Military Airlift Command, and is authorized until 24 March 1982, unless authorized to continue before that date. The contents are informative and not regulatory or directive. All names of people and places in mishap stories are fictitious; photos of aircraft in mishap stories are representative and not necessarily of the airplane involved. No information in any article may be construed as incriminating under Article 31, UCMJ.

**Contributions, comments** and criticisms are welcome. Write: *The MAC Flyer*, HQ MAC/IGFE, Scott AFB, IL 62225; or call 618-256-3534, or autovon, 638-3534. The editor reserves the right to change manuscripts to improve them or correct technical errors.

**Subscriptions** are available from: The Superintendent of Documents, Government Printing Office, Washington, D. C. 20402. Price $1.30 per copy, $15.00 per year (foreign address: $1.65 per copy, $18.75 per year). Changes of address for subscription mailing should be sent to GPO; give old and new address, including zip codes. MAC units establish requirements for this magazine through their publication distributor (DAPD). Other U.S. Military units should consult administrative directives. *The MAC Flyer* is published at an approximate ratio of one magazine for every five MAC aircrew members, and one for every twenty MAC support personnel.

Distribution F, X; OPR: HQ MAC/IGFE
ISSN 0024—788X

# Attention Procrastinators

Do you wait until the last minute to mail in your income tax return? Did you delay until December 24th to do that last minute Christmas shopping? Do you like burning the midnight oil before that report is due because you think you work better under pressure and time constraints?

Well, if you're that kind of a procrastinator you'll be happy to hear that you have only until March 31st to mail us your entry in the 1981 MAC Flying Safety Writing Contest. This "short suspense" is a late starters' dream, and the effort, even a last minute one, will be well worth it. A free C.R. Terror T-shirt and a one-year subscription to the world's finest fly safe magazine (worth $15.00 at the local GPO news stand) will be yours just for sending in an entry that qualifies for judging under the rules (see small print below). In addition, the three top winners receive handsome desk sets and Honorable Mention winners are awarded beautiful wooden plaques testifying to their awesome authorship.

So get cracking on your literary masterpiece and remember, the deadline is March 31st.

## The Rules

The 1981 MAC Flying Safety Writing Contest is conducted according to MACR 900-3 and the following rules. All entires must be original, unpublished, and postmarked no later than 31 March 1981. Stories must be between 1,000 and 3,000 words long (about 6 to 14 double-spaced typed pages); poetry should be about 75 to 100 lines. Entries must contain an aviation safety message. Manuscripts must be double-space typed and submitted in two copies. The article will be identified by title only, and a coversheet will be attached showing the author's name, address, phone number and unit. Also, the coversheet should contain a brief autobiography.

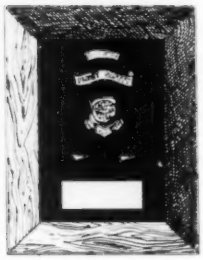
The contest is open to anyone, and entries qualifying under the above rules earn their author a free C.R. Terror T-shirt and a one-year subscription to *The MAC Flyer*. However, contest prizes (desk sets and plaques) may only be awarded to military and civilian employees of the DAF or Air Reserve Forces. Other entrants may be selected for Honorable Mention in a Special Category. All winning stories will be published in *The MAC Flyer*. Entries should be addressed to: Writing Contest
HQ MAC/IGFE
Scott AFB, IL 62225

# 1980 MAC Safety

## The MAC Trophy for Flying Safety

Presented to the MAC air force or service with the most effective flying safety program as determined by flight mishap rate, severity and causes of mishaps, and mission.

*21st Air Force*



## MAC Distinguished Flying Unit Safety Award

Presented to the best unit from among those receiving the MAC Flight Safety Achievement Award.

*616 MAG, Elmendorf AFB*

## MAC Support Safety Achievement Award

Presented to airlift support units which have an exceptional quality of services and successful mishap prevention programs.

**Det 3, 322 ALD, Athens**
**603 MASS, Kadena AB**
**605 MASS, Andersen AFB**
**619 MASS, Hickam AFB**
**625 MASS, Torrejon AB**
**627 MASS, RAF Mildenhall**

## MAC Flight Safety Achievement Award

Presented to wings or equivalent units that are accident-free and have effective flight safety programs.

**39 ARRW, Eglin AFB**
**41 ARRW, McClellan AFB**
**60 MAW & 349 MAW (Assoc), Travis AFB**
**63 MAW & 445 MAW (Assoc), Norton AFB**
**89 MAW, Andrews AFB**
**314 TAW, Little Rock AFB**
**317 TAW, Pope AFB**
**375 AAW & 932 AAG (Assoc), Scott AFB**
**435 TAW, Rhein-Main AB**
**436 MAW & 512 MAW (Assoc), Dover AFB**
**437 MAW & 315 MAW (Assoc), Charleston AFB**
**438 MAW & 514 MAW (Assoc), McGuire AFB**
**443 MAW, Altus AFB**
**463 TAW, Dyess AFB**
**616 MAG, Elmendorf AFB**

# Award Winners

## MAC Safety Officer of the Year Awards

Primary Duty

Maj Alan C. Murphy, 39 ARRW, Eglin AFB

Additional Duty

1st Lt Mark J. Fowler, Det 7, 37 ARRS, Minot AFB

## MAC Safety NCO of The Year Awards

Primary Duty

Sgt Michael A. Gulliano, 436 MAW, Dover AFB

Additional Duty

MSgt Jerry L. Decker, 62 APS, McChord AFB

## Special Achievement Safety Award

To the late Mr. Roland F. O'Toole, Safety Officer, 436 MAW, Dover AFB

# FLYER FORUM

## PART TIME CREWMEMBER

by Capt Alan J. Ose
773 TAS, Dyess AFB, Texas

There has been a tendency among some MAC aircrews to consider certain phases of the flight as the exclusive domains of particular crewmembers. How many times have you heard the pilot say, "Nav, you've got it," as soon as the aircraft departs the coastline on an overwater flight; or, conversely, heard the navigator heave a sigh of relief after a long navigation leg and utter the same comment to the pilots as soon as the tacan has locked on again? In these days of lowered experience levels in all crew positions, it behooves each of us to demand the *best* performance from every crewmember every time, and not be satisfied with part-time attention to duty. This is especially true, for example, with regard to navigator participation in all aspects of the approach phase of a flight.

That participation should begin before the aircraft ever leaves the ground, during flight planning. Checking out potential destination airfields should be an item of crew coordination involving all the information available on the ground and inflight.

For the inflight phase, the quality of the approach flown will be directly proportional to the adequacy of the briefing given. At this point, the navigator should provide the standard terrain and arrival area information using a TPC chart supplemented with the latest obstruction data from the approach book. With a thorough briefing completed, the navigator can devote his full attention to the aircraft position from initial descent to landing. The first step should be to set up for an airborne radar approach (ARA), and identify the field on radar. When this is announced to the pilots it provides an excellent crosscheck between their radio nav aids and the radar fix. The procedure should be repeated several times throughout the approach to confirm the reliability of other navaids, and to reaffirm that the navigator is actively monitoring the approach.

When using radio aids for any approach, the standard procedure is to aurally check each station identifier. The navigator should also visually confirm that the proper tacan channel and VOR frequency for the approach have been set before he bets his life on them. Internal navigation systems, doppler, Omega or INS should be set and programmed so that they too can aid in confirming the relative position of the aircraft. In other words, all available navaids should be set, crosschecked, and used throughout the approach.

MAC regs specify when altitude calls are mandatory for each type of approach, and the reasoning behind this requirement is based on history and tragic experience. If the pilot not flying the aircraft fails to make a required altitude call, the only person left to catch the falling banner is the navigator. Once again, the mark of a true airlifter is how well he actually performs, not how well he *could* do it if he tried.

During final approach, the navigator should obtain an inflight wind and compare it with the surface wind given by the tower. If there is a significant difference between the two in direction or velocity, the possibility of a windshear is strong. The pilot may never have considered that possibility until the navigator informs him of the inflight wind. Armed with the facts, a pilot can anticipate the drift correction for the final approach.

As a matter of technique on final approach, getting near minimums, the navigator, if duties permit, should scan the gear and flap indicators to insure proper landing configuration. If any discrepancies are noted, the nav should call this to the pilot's attention. Once again, the navigator has demonstrated his partnership in the approach process. If he shows an interest in what is normally the "pilots' portion" of the mission, hopefully a closer crew alliance can be formed and flying safety will be enhanced. It should also tend to reduce the "that's not my job" attitude which builds walls around crewmembers and can be a great obstruction to safe flight.

# GLOBAL NOTES

## PJ Is Outstanding Airman

Ceremonies in Washington, D.C., in September 1980 marked the 25th annual recognition of 12 Outstanding Airmen. Among the "Golden Dozen" was a MAC crewmember, SMSgt James F. Spears. He is NCOIC of the USAF Pararescue School's Medical Department, Kirtland AFB, New Mexico.

SMSgt Spears was selected as the MAC Outstanding Airman before achieving USAF recognition last fall. He has over 24 years of service and believes, "When you go out and do something to save someone's life, that is the ultimate experience."

He will modestly admit that he has helped save over 200 lives. While working in ARRS, he also helped provide support for manned space flight recovery missions including *Gemini* 4, 5, 6 and 7, and he served a tour in Southeast Asia.

Besides being a dedicated professional crewmember, SMSgt Spears is an avid supporter of the Special Olympics, and works with Albuquerque paramedics and members of the Albuquerque Mountain Rescue Team. He has taken the ARRS motto, "That Others May Live," as his own.

## AAVS Recognizes *TMF* Artist

We at the *Flyer* have always known that our Art Director, Tom O'Laughlin, is an excellent illustrator, and Aerospace Audiovisual Service recently confirmed our opinion. Tom won the AAVS Graphics Contest for the fourth quarter FY 1980, illustration category, with his oil painting of the Douglas C-1. Although our two-color reproduction of the prize-winning art work (pgs 16 & 17, Sept 1980 *TMF*) doesn't really do justice to Tom's talents, it does give you some idea of how beautiful the original full-color painting is. Mr. O'Laughlin is a "satellite" illustrator employed by Det 1, 1361 AVS, Scott AFB, but we like to think of Tom as *our* number-one pen and brush expert.

## Flying-Hour Milestone Awards

During the second half of 1980 (1 July to 31 December), 32 more members of the MAC aircrew force surpassed the 10,000-hours accident-free flying milestone. These aviators were recognized by CINCMAC for their outstanding achievement in service to the United States (ranks and units are those at time of award).

Col Anthony J. Burshnick, 60 MAW
Col James N. Hockney, 62 MAW
Col Billie J. Taylor, 22 AF
Lt Col John C. Attebury, 702 MAS
Lt Col John T. Gilmore, 158 TAS
Lt Col Albert C. Gross, 105 TAS
Lt Col Alfred W. Hansen, 75 MAS
Lt Col Robert L. Leschack, 313 MAS
Lt Col Richard W. Lonneman, 20 MAS
Maj Larry J. Brandt, 9 MAS
Maj George S. Buchanan, 312 MAS
Maj Ralph L. Elrod, 4 MAS
Maj Joel V. Falk, 312 MAS
Maj William C. Hussey, 18 MAS
Maj Leslie H. Roodzant, 8 MAS
Maj Robert Y. Urquhart, 75 MAS
Capt Ronald M. Lane, 728 MAS
CMSgt Leslie B. Barnett, 57 MAS
SMSgt Carl J. Chap, 8 MAS
SMSgt Victor J. Lesquier, 18 MAS
SMSgt Richard R. Palazzo, 335 MAS
SMSgt Victor Sczepanski, 33 ARRS
SMSgt Bobbie G. Smith, 1550 FTS
SMSgt Jarvis M. Williams, 300 MAS
MSgt Alan S. Bratland, 109 TAS
MSgt Thomas E. Collins, Jr., 7 MAS
MSgt William D. Gill, 158 TAS
MSgt Charles F. Schmitt, 155 TAS
MSgt Marion L. Turrell, 17 TAS
MSgt Elwood C. Wilson, 20 MAS
MSgt Calvin J. Zenaklik, 728 MAS
TSgt Leslie E. Tjaden, 75 MAS

Four MAC flyers joined an even more elite group of military aviators during 1980 when they accomplished 15,000 hours of accident-free flying. Their years of hard work in a variety of demanding aircrew positions were individually recognized by General Huyser with the award of a personalized plaque in addition to the individual flying-hour milestone certificate and patches. These high-time safe flyers for 1980 are Lt Col Robert M. Ottwag, 728 MAS; CMSgt Henry Eaton, Jr., 7 MAS; CMSgt William W. Hargis, 708 MAS; and MSgt James A. Meade, 728 MAS.

**Honorable Mention, 1980 MAC Flying Safety Writing Contest**

# You Don't Surf Mountain Waves

## A somewhat belated tale of a near disastrous encounter with one of nature's most treacherous offspring.

by Colonel Garnett C. Brown
National War College
Washington D.C.

I was new to the flying business, a first lieutenant aircraft commander on the C-124, Donald Douglas' contribution to the outsize airlift business. We were returning to Dover from Travis, carrying retrograde cargo from a Pacific trip, in 1964. The route we'd picked (No, Virginia, we didn't always have a computer flight plan.) was across the southwest, because that allowed the lowest altitude to sneak over the Rockies. For those who don't remember, Old Shakey wasn't pressurized, and crews hated to take it above 10,000 feet due to the mandatory requirement to wear oxygen masks. If a mask was required, you can bet the crew picked the route which required the shortest duration of "hose time."

We were cruising along at the minimum enroute altitude, those four big R-4360's "purring like a room full of Tom cats drinking sweet cream," as MSgt Charlie Flack used to tell me. It was easy to observe the mountains—they were close. Up ahead you could see they were getting closer as we approached the tallest ridgeline on the route. For camera buffs it was downright ideal.

Indicated airspeed in our aluminum overcast was 175 knots, and the airspeed envelope was much smaller than in today's jets. We usually took off at somewhere between 112 and 118, depending on all those things you figured in the performance charts; climbed at 145 to 150; and cruised at 175 KIAS. Redline was 238, as I recall. The aircraft wasn't overpowered (similar to the C-5 in things you keep in the back of your mind, I'm told), so you kept pretty close track of the airspeed. Flying in the mountains, the successful trash hauler of that day also kept up with altimeter settings. (Remember "Fly towards a low, lookout below"?)

Where were we? Oh yes, approaching the ridgeline. Not a cloud in the sky. I was sitting there in the left seat, one foot on the floor, the other propped up against the parking brake lever on the center consol, sipping a cup of coffee. (Suspicions confirmed, right?) Old George, the faithful autopilot, was keeping on the centerline of Victor something or other (come on, I can't remember airways after 17 years!) when I noticed the airspeed suddenly start to decay. George was cranking in a little nose-up trim as she slowed to about 170, then 168 knots.

"Engineer, pilot," I called, "give us a few more horses. Looks like we're running against a little pressure ridge." The engineer rogered, and I watched as an additional 50 rpm came up across the board, followed by an increase in manifold pressure. The sound changed as the three-bladed Curtis Electric props bit the air faster, and the exhaust pattern over the wings changed.

Still the airspeed continued to slip away. As it dropped below 160 I called, "Climb Power!" and

that woke up the copilot. Old George was still cranking in nose-up trim. The ridgeline was close, but it looked like we were going to be safely above it—I hoped. Well, climb power obviously wasn't going to hack it. Something was stealing my airspeed! I sat up straight in the seat and punched George off as the needle dropped below 145.

"METO power, engineer!" (Everybody was paying attention by now.) We were starting to pick up a little turbulence—the short, intense, choppy kind. The kind that always made me stop looking at the wings. (Is that much flex *really* okay?) At 2,600 rpm (maximum was 2,800) the C-124 was as stable as it would ever be, but it still seemed as if a big hand was pushing us back down. We were almost on top of the ridgeline and Shakey wanted to settle. The nose was as high as I dared keep it (I didn't want the accident board to accuse me of attempting flight on "the back side of the power curve,") and the airspeed was still decaying. And damn that turbulence, too! Here comes the ridge line.

"MAX* Power!" The airspeed held at a shade under 130 and we squeaked over the ridge right at the minimum altitude.

When you're sitting at max power and unsure if that's gonna cut it, your mind really races for options, and believe me, I was short on what to try next. Thankfully, I didn't have to try anything. As suddenly as it started, the problem was over. Almost as soon as we crossed the ridge, the airspeed shot up like a rocket! (For a C-124, that is.) She jumped to 200 knots indicated before the engineer could get cruise power re-established. When it went through 220, I closed the throttles and watched as we shot away from the mountains and started across the desert floor, which seemed to be dropping away from us. The turbulence subsided, and as the airspeed began to slow, we set up cruise power again and drove on towards home. The rest of the trip was uneventful.

I figured we'd encountered a mountain wave. Other than half an hour during a weather class back in pilot training (and maybe the occasional annual instrument refresher), I didn't remember being told much about the phenomenon. It seemed like there was supposed to be a cap or lenticular cloud signaling that a wave was there with its associated strong downdrafts. I got to thinking about what might have happened if it had been a black night instead of broad daylight, or we'd been in instrument conditions. Then I tried not to think about it. I may have mentioned my mountain surfing experience in passing as part of a war story session a time or two, but I never *reported* it to anyone, not even to our squadron flying safety type. In fact, more than a decade had passed—along with many more flying hours, followed by more time out of cockpits than in them—when I read an article titled "Rocky Mountain Low" in the October 1979 issue of *The MAC Flyer*. The conditions were different for the star of that story, as was the outcome, but the cause was the same: a mountain wave. It made me wonder: if I had passed my experience along, could it have saved someone? Does being prepared and knowing what to expect under different situations contribute to longevity? Do we have an obligation to those who share our profession? I believe so.

This story represents a debt long overdue. If you have something that should be shared, don't wait 16 years—share it! You might help to save somebody nice. Fly Safe.

*(All those reciprocating babies will give you! Within permissible limits, of course. It was common knowledge you could exceed manifold pressure limits by using full throttle throw, but you risked blowing cylinders off the engine. Then, once you reduced power, the engine was finished.)

## ABOUT THE AUTHOR

Colonel Brown graduated from the University of Kentucky and entered the Air Force in 1960. He has flown a host of aircraft in both MATS and MAC including the C-123, C-124, CT-39 and C-141, accumulating over 5,100 hours. Besides flying the line in "Old Shakey" and other airlifters, Colonel Brown has held various staff jobs at wing and MAJCOM level, including a sting as Associate Editor of *TMF*. Until recently, he was assigned to the Joint Staff as a political-military planner. Colonel Brown is presently attending the National War College.

**Fascinating reading for aviation buffs.**

# BOOK REVIEWS

**by Major James G. Gibson II**
**Supervising Editor**

**Bat-21**
**by William C. Anderson**

While it was in progress, the war in Southeast Asia was the most extensively covered and thoroughly reported conflict in the history of journalism. Ironically, after the American withdrawal and the "Vietnamization" of the south by its northern neighbors, a virtual curtain of silence fell on the subject of the war and anything to do with it. Gradually, over the last couple of years, that curtain has finally begun to part, judging by increased media interest in such things as the plight of Vietnam veterans, and a number of movies, television dramas and informative programs and articles which have recently been devoted to exploring various aspects of the American military involvement in Southeast Asia. As some of the stigma and paranoia about the war subside, one benefit is the revelation that the heat of battle in those faraway jungles spawned some genuine heroes. Lt Col Iceal E. Hambleton and the people who worked desperately to rescue him exemplify just such folks, and their amazing story provides the central theme for *Bat-21.* After sustaining painful injuries and parachuting into the jungle north of the DMZ when his EB-66 reconnaisance plane gets blown away by an NVA rocket, Hambleton is forced to evade the enemy and survive by his wits while one of the most extensive and dangerous rescue efforts of the war is mounted. When several attempts to extract the venerable but plucky 53-year-old navigator are thwarted and the Viet Cong are nipping at his heels, he is forced to give his pursuers the slip and golf—that's right *golf*—his way to a more secure pickup point and freedom. Bill Anderson has done a superb job of building suspense while keeping a thread of "grin and bear it" humor running through this adventure which is based on actual events. Hambleton's indomitable will to survive and the extent of the heroic efforts to save him make inspiring reading. I vote for including a copy of *Bat-21* in every aircrew survival kit, but don't wait 'til that happens or you'll be denying yourself one of the most absorbing "war stories" to come out of the Vietnam experience.

# FLYERS ANONYMOUS

*This report comes to us from a MAC crewmember who observed several unsafe practices and conditions on an airlift mission. The account points out how we as crewmembers can set a bad example and carelessly create hazards by unprofessional flying.—Ed*

To get to the West Coast on leave, I hitched a ride (in civilian clothes) on an airlift mission that was scheduled for several stops, including Los Angeles International (LAX). The two experienced pilots on the crew were from another squadron, so they didn't recognize me as an instructor pilot in their aircraft type. By the time I got off the plane at LAX I was very thankful just to be back on the ground safely. I want to point out some unsafe things these flyers did so that, hopefully, other folks won't let their discipline slack off and take such unnecessary risks.

At our first stop, the crew's preflight procedures were haphazard at best. I silently observed one pilot's walk-around inspection. Normally this aircraft requires a conscientious preflight check to insure that the required number of panels, doors, control surfaces and FOD-free engines are securely attached to the airplane. What this aircraft commander did could best be described as a "stroll-around check." As far as I could tell, our pilot checked less than half of the things I usually look at carefully, and he certainly didn't comply with the Dash One. To top it all off, the crew manned the cockpit, started engines, and taxied out for takeoff without so much as a glance into the cabin, let alone a decent passenger briefing.

During the descent into LAX,I was allowed to observe the cockpit—in some ways I wish I hadn't. Los Angeles was landing to the west with simultaneous ILS approaches to the parallel runways. The weather was about normal for the L.A. basin, 1,500-foot ceiling with two-miles visibility in smog. We entered the clouds at about 7,000 feet. After several vectors for traffic sequencing, we were cleared for the ILS to runway 25R with instructions to "maintain 2,500 until intercepting the localizer." After this clearance, things seemed to get a little out of hand in the cockpit. The pilot turned the plane to a heading parallel to the localizer course with the CDI still fully deflected to the right, showing that we were somewhere south of the ILS final approach course. We were close enough to the airport, however, for the glide slope indicator and steering bar to work, so he started down the glide slope. Now we were descending out of our clearance altitude with the localizer fully deflected, in the weather, and in an area where the minimum safe altitude was about 2,500 feet higher than what the cockpit altimeters were showing. I winced as we continued down through the final-approach-fix altitude, still south of the localizer and with only a small intercept angle. Fortunately, the weather observation was accurate, and shortly after passing the marker we descended below the clouds. The pilot spotted the field several hundred feet above minimums, banked right to line up with the runway, and made a fairly smooth landing. I swallowed the large lump in my throat as we safely stopped in the parking spot.

Perhaps I was more sensitive to the crew's errors because I am a pilot myself. I was the only other rated officer aboard the flight so the rest of the passengers never knew the danger they were in. Also, as an experienced flyer I can recognize unprofessionalism when I see it. A new and impressionable aviator might have accepted such bad examples as the norm and chosen to live—or possibly die—by that standard. My plea to all of my fellow crewmembers is, "Let's be professional, even when we don't (or *think* we don't) have somebody looking over our shoulders. We need to fly *every* mission as if our lives and the lives of our passengers depended on it—because in fact, they do!

# Distraction

**This is the first in a two–part series reporting the results of a NASA Aviation Safety Reporting System study on pilot distraction. All data was compiled from voluntary reports submitted by professional crewmembers and offers us a unique opportunity to explore the "why" in unsafe aviation occurrences.**

One of the most frequent causes of hazardous events in air transport operations, according to information gathered by the Aviation Safety Reporting System (ASRS), is human susceptibility to distractions. This report describes the study of this topic, carried out as one element in the series of air carrier human factor investigations conducted by the ASRS research group. Distraction appeared more frequently than any other human factor in the ASRS data base. A total of 169 distraction events were identified in the voluntary reports submitted by air carrier pilots.

Cause factors for those 169 occurrences fell into two distinct categories.

- Flight operations tasks, necessary for crew functioning, with the cause of distraction often noted in ASRS reports as "workload" or "excessive workload." These workloads consisted entirely of routine duties normal to every flight.
- Non-flight-operations activities consisting of company-required tasks.

Both categories of distractions compromised safe flight operations in two separate ways.

- An essential task was not accomplished. For example, failure to watch for traffic resulted in several near-miss incidents.
- Crew coordination or crew management was seriously interrupted or eliminated. This loss of organized teamwork frequently led to crew inattention to flying the airplane with deviations from a desired flight path.

**Types of Reported Distractions**

| Type | Number |
|---|---|
| Operational — Flight Workload Tasks | |
| Traffic watch | 16 |
| Checklist | 22 |
| Malfunctions | 19 |
| ATC communications | 6 |
| Studying approach chart | 14 |
| Radar monitoring | 12 |
| New fist officer | 10 |
| Looking for airport | 3 |
| Fatigue | 10 |
| Miscellaneous | 2 |
| Nonoperational activities | |
| paperwork | 7 |
| PA system | 12 |
| Conversation | 9 |
| Flight attendant | 11 |
| Company radio | 16 |
| Total | 169 |

Thoughtful analysis of the causes of distraction shows that cockpit priorities for completing routine tasks follow consistent patterns. During excessive workload peaks, checklists were always accomplished, radar monitoring continued, and minor malfunctions were handled. However, routine traffic watch and ATC communications (especially tower handoffs) were apparently lower priority items and occasionally were not accomplished in time to avoid an unsafe occurrence.

In contrast, when ATC radar controllers called traffic at a specific "clock" position, highest priority was apparently given to finding the other aircraft. This task was often so overriding that crew management lapsed and cockpit coordination failed.

## Operational Distractions

The tasks were routine but essential. Typical combinations in the ASRS reports were running a checklist while taxiing, or during climb or approach; monitoring radar while changing altitudes; traffic watch at leveloff; and ATC communications coupled with weather avoidance. All are usual flightcrew functions. When accomplishment of several such duties merged into simultaneous activity through coincidence, poor planning, or urgency, then a distraction-due-to-workload event sometimes occurred.

In the great majority of incidents, distraction was associated with good-weather situations. It would appear that routine workloads were not only greater in a see-and-avoid, blue-sky world, but far more dangerous due to the human

factors limitations of flightcrew members. As one controller stated: "You never see an altitude bust in bad weather." And a pilot reported: "Crews should be more attentive to detail, especially when the weather is good."

### Traffic Watch Distractions

"Traffic at twelve o'clock" is one of the most compelling phrases heard in an airplane cockpit. It is an urgent alarm. The radar controller's warning triggers a universal self-preservation instinct to avert imminent danger.

In contrast, a general traffic scan without specific radar targets resulted in attention of only one airman being drawn from aircraft monitoring. Under these circumstances incidents took place when the other pilot either made a flight error or became preoccupied with other tasks such as flying a complicated SID, looking at a weather chart, or "performing cockpit duties and radio work."

Ironically, a radar point-out of specific aircraft traffic draws such complete and sometimes protracted crew attention that traffic scan is lost in other directions. Many aviation adages have been formulated from such experience, such as "It isn't the one you are looking for that will hit you," or "As soon as you see one aircraft, look in the other direction."

Although in many cases distraction resulted in the lookout task being accomplished at the expense of adequate monitoring of the aircraft trajectory, also sometimes the opposite situation occurred. Consequences in those cases of inadequate traffic watch were usually far more serious than an altitude excursion.

**Traffic Watch Distraction**

| Distraction results | Number of reports |
|---|---|
| Altitude deviations from clearance | 12 |
| Near miss | 1 |
| Nonstabilized approach | 1 |
| No tower landing clearance | 2 |

**Traffic Watch Altitude Deviations**

| | |
|---|---|
| In early climb phase | 10 |
| In late climb phase | 1 |
| In descent phase | 1 |
| Total | 12 |

### ATC Communications Distractions

Six distraction events associated with ATC communication requirements were reported. Other cockpit tasks were always linked with ATC communications in excessive workload situations. Five altitude overshoots happened during low-altitude climb-outs, and there was one failure to obtain tower landing clearance. Other factors were running a checklist, tuning navaids, and traffic watch.

It appeared that the ATC communication messages themselves were not the cause of reporter complaint as much as the ATC timing and message content (turns, amended clearances, vector headings, etc., occurring at leveloff).

### Checklist Distractions

Twenty-two reports of distraction incidents associated with reading checklists were submitted. An analysis of those reports revealed common characteristics.

- Every report indicated that checklist accomplishment received priority over ATC requirements. Every incident ended in a potential or actual violation of ATC rules or regulations.
- The checklist activity was almost always going on at the same time other cockpit tasks were being performed: radar monitoring, minor malfunction, systems operation, traffic watch, etc. Checklist accomplishment became a cause for distraction not by itself but as part of cockpit workload. In the incidents reported, the workload became "excessive" and "time ran out" before all tasks could be completed.

It appears clear from the ASRS reports that checklist accomplishment, when combined with other aircrew tasks, becomes a specific factor in creating the well-known "excessive cockpit workload."

**Checklist Distractions**

| Phase of flight | |
|---|---|
| Climb checklist | 7 |
| Descent checklist | 6 |
| Landing checklist | 6 |
| Taxi checklist | 3 |
| Total | 22 |

| Results | |
|---|---|
| Altitude deviations | 9 |
| No landing clearance | 6 |
| Took another aircraft's clearance by mistake | 2 |
| Unauthorized entry into active runway | 3 |
| Failure to see-and-avoid | 2 |
| Total | 22 |

### Approach Plate or Chart Reading

Fourteen distractions due to studying approach plates or terminal area charts during

descent were submitted by aircarrier airmen. Nine altitude deviations (most were overshoots), three near misses, and one route deviation resulted from the read-as-you-fly technique.

Thirteen of the 14 incidents occurred at low altitudes (11,000 feet and below). One incident involved holding at 17,000 feet, when the captain was flying and unable to locate the holding fix on his chart. Concurrently, a new first officer was not being used effectively. The autopilot failed to hold and an altitude excursion resulted. The captain's final comment: "Frankly, the old man was overloaded."

Five reports involved profile descents. One airman said about the procedure: "Too many heads down reading during a critical phase of descent. The fewer distractions the crew has during descent the safer the operation will be." In a different report—"Neither pilot had been in the area in the last 90 days"—two captains flying together had their heads down when a light airplane passed 200 feet above their aircraft.

**Malfunction Distractions**

Malfunction distractions affected flight operations in two ways:

- By distracting both pilots or all crewmembers and leaving the aircraft flight path unmonitored.
- By distracting one pilot, the cross-monitoring backup function was eliminated and an error went unchallenged. It was interesting to note that serious malfunctions or abnormalities did not trigger any distraction reports.

The disciplined response in avoiding overconcentration upon an emergency or a serious near-the-ground malfunction is apparently less emphasized in the handling of minor abnormalities at higher altitudes.

Eighteen of the 19 distractions resulted in inadequate monitoring or control of the desired flight path. "Cockpit management" and "crew coordination" were the descriptive terms applied by the diagnostic researchers to these reports.

In five reports of altitude deviations it was mentioned that the autopilot was on. This suggested that crew awareness of instruments may be diminished when the autopilot is engaged, and that crewmembers feel free to engage in protracted troubleshooting of a systems problem.

**Malfunction Distractions**

| Type of Malfunction | Number of reports |
|---|---|
| Engine generator | 4 |
| Door warning | 3 |
| Pressurization | 2 |
| Duct overheat | 2 |
| Engine vibration | 1 |
| Gear light | 1 |
| "Mechanical Problem" | 1 |
| Autopilot malfunction | 1 |
| Smoke in cockpit | 1 |
| Compass malfunction | 1 |
| Anti-ice light malfunction | 2 |
| Total | 19 |

| Results of distraction | |
|---|---|
| Altitude deviation from clearance | 12 |
| Deviation from route | 3 |
| No landing clearance | 2 |
| Penetrated restricted airspace | 1 |
| No deviations | 1 |
| Total | 19 |

**Weather Avoidance**

Distraction due to over-attentiveness to the avoidance of towering buildups, thunderstorms, and turbulence were classified into the following two categories:

- Attentiveness outside the aircraft, visually diverting around buildups.
- Attentiveness to radar monitoring inside the aircraft.

Several airman reports of weather avoidance expressed some puzzlement as to why the radar controller had to be convinced of the need to divert. The design of ground radar inhibits "painting" some of the buildup activity cockpit radars are able to display. The six visual avoidance events resulted in six altitude overshoots. Overreliance on autocapture of leveloff by the autopilot was related in one of these reports.

Although visual dodging of thunderstorms was not associated in the reports with other cockpit activities, radar monitoring did combine with other tasks in creating an overload. Checklists, navaid tuning, ATC communications, and fatigue were also listed in various reports. All six narratives noted the presence of "thunderstorm activity." Two deviations around weather ended in ATC interventions or off-course excursions, and four distractions resulted in altitude deviations.

**New First Officer**

By adding to cockpit workload, an inexperienced first officer may disturb normal crew management of the flight. Monitoring or instructing the new right-seater may distract the captain from accomplishing his normal duties. Conversely, a captain may be occupied in a routine task and fail to catch any mistakes brought about by inexperience or unfamiliarity with

route, equipment or procedures.

**"Looking For Airport"**

Three air carrier reports indicated that overattention to locating the airport or runway could distract crewmembers from required tasks. Results of the three reported events were a near miss, a deviation from assigned altitude, and an ILS localizer overshoot with parallel ILS approaches in process in restricted visibility.

**Fatigue**

Although fatigue is not itself a distraction, it increases the airmen's vulnerability to distractions.

The work-rest cycle is highlighted by various comments: "Seventh approach today;" "On duty seven days in a row;" "Eight landings in eight-and-one-half hours flight time;" "Eight landings with three instrument approaches in thunderstorm activity."

**Distraction Events Associated with Crew Fatigue**

| Event | Number of reports |
|---|---|
| Altitude deviations | 6 |
| Approach to wrong airport | 1 |
| Route deviations | 2 |
| Misread chart | 1 |
| Total | 10 |

## Summary

If airliners were flown by only one pilot, any distraction could easily result in another entry into the NTSB accident file. However, airline cockpits are manned by two or more aviators that operate as a team under crew-concept and human-redundancy principles. Thus, any air carrier distraction report relating an unsafe occurrence leads the ASRS researcher to investigate cockpit coordination and crew management practices.

With regard to distraction events, analysis of the reports volunteered by the airmen indicate that crew management could be simplified into the accomplishment of these two goals:

- Maintenance of the aircraft's desired flight path.
- Timely and correct completion of a task or duty.

To achieve these goals, human engineering concepts have been applied to cockpit activities so that crews are trained not only to "fail safe" but to "fail operational." In the identical manner by which dual category-two autopilots monitor each other's electronic performance during an autoland maneuver, crewmembers should monitor each other's performance, ready to restore normal operation if and when an error or out-of-limits excursion should occur.

If, due to distraction, one crewmember is removed from the operational loop, then a vital cross-checking function is eliminated and the operation becomes vulnerable to any error committed during the "one-man show." This mistake is more than a link in a chain of events because while unchallenged it becomes a hook moving forward in time, ready to grab other pertinent coincidences and cause a mishap.

If both pilots (or the entire cockpit crew) are distracted from monitoring or flying the aircraft, the airplane is in jeopardy. If the distraction is protracted, then the flight is in utmost peril.

**More on Distraction next month**

# Sikorsky H-19

Designed and built by Sikorsky, the H-19 came along just in time to see action in Korea. The prototype first flew in late 1949 with deliveries to Air Force Rescue units in Korea, beginning early in 1951. Third Air Rescue Squadron crews, flying H-19's to snatch downed aircrews from imminent capture, won the first Presidential Unit Citation awarded to any outfit in Korea.

Other exploits by units equipped with this piston-powered chopper in Korea included counter-intelligence operations and the first retrieval of an aircraft by a helicopter. In one instance, an ARRS crew landed 35 miles behind enemy lines with a team of South Koreans who quickly dismantled most of a Russian-built MIG fighter. The straining helicopter climbed out of "MIG Alley" with the heavy load slung underneath. Despite intense enemy ground fire, the chopper kept flying and the crew made it back safely.

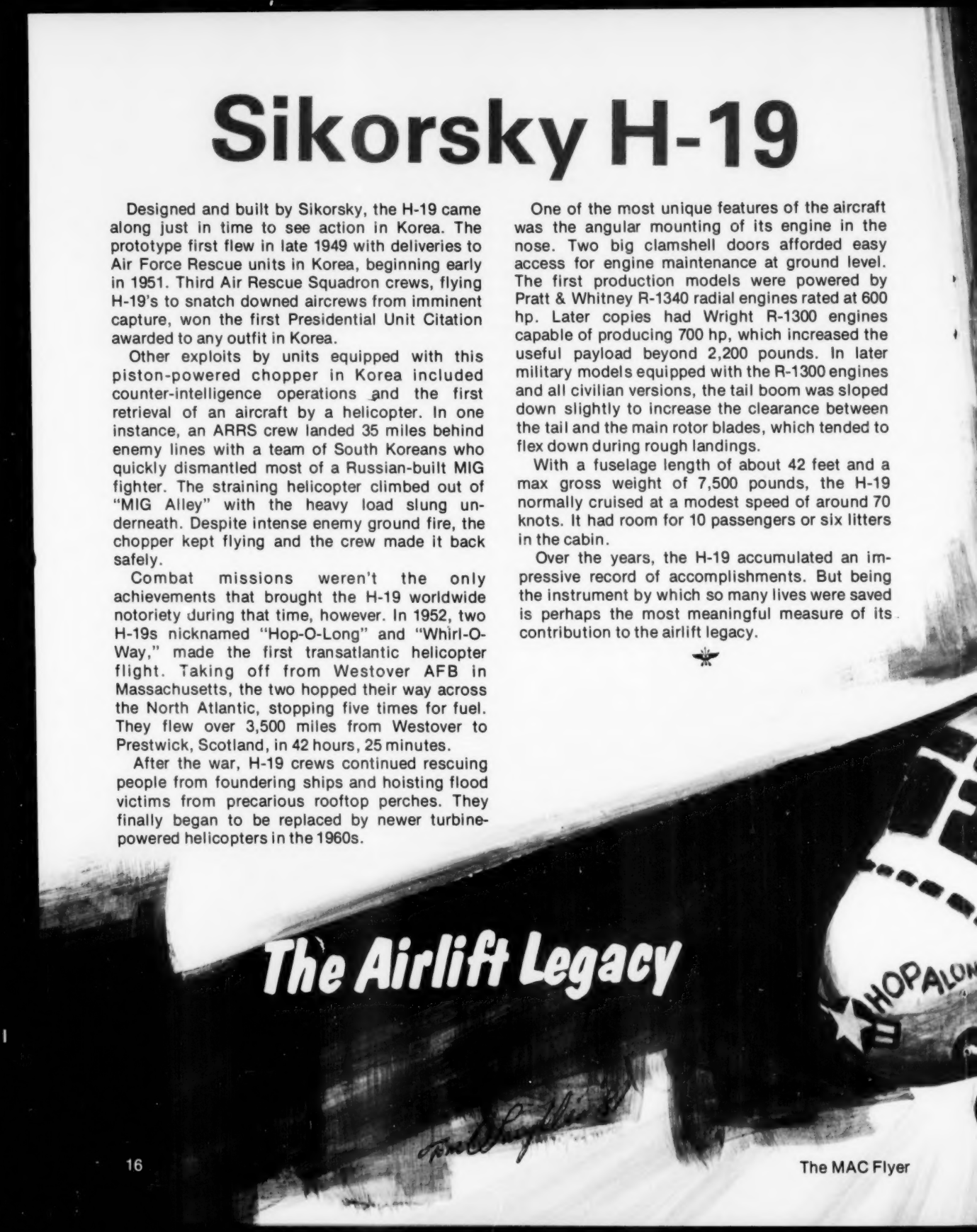
Combat missions weren't the only achievements that brought the H-19 worldwide notoriety during that time, however. In 1952, two H-19s nicknamed "Hop-O-Long" and "Whirl-O-Way," made the first transatlantic helicopter flight. Taking off from Westover AFB in Massachusetts, the two hopped their way across the North Atlantic, stopping five times for fuel. They flew over 3,500 miles from Westover to Prestwick, Scotland, in 42 hours, 25 minutes.

After the war, H-19 crews continued rescuing people from foundering ships and hoisting flood victims from precarious rooftop perches. They finally began to be replaced by newer turbine-powered helicopters in the 1960s.

One of the most unique features of the aircraft was the angular mounting of its engine in the nose. Two big clamshell doors afforded easy access for engine maintenance at ground level. The first production models were powered by Pratt & Whitney R-1340 radial engines rated at 600 hp. Later copies had Wright R-1300 engines capable of producing 700 hp, which increased the useful payload beyond 2,200 pounds. In later military models equipped with the R-1300 engines and all civilian versions, the tail boom was sloped down slightly to increase the clearance between the tail and the main rotor blades, which tended to flex down during rough landings.

With a fuselage length of about 42 feet and a max gross weight of 7,500 pounds, the H-19 normally cruised at a modest speed of around 70 knots. It had room for 10 passengers or six litters in the cabin.

Over the years, the H-19 accumulated an impressive record of accomplishments. But being the instrument by which so many lives were saved is perhaps the most meaningful measure of its contribution to the airlift legacy.



RESCUE

# Flight Lines

**See No Evil, Speak No Evil . . .**

I couldn't agree more with your article mentioning a C-141 LOX problem which ran in the October *Flyer* (see "Risk Management"). A similar incident was brought to light by a maintenance troop here who filed a hazard report with this safety office. It was sent to the C-141's home station and returned to us with no action taken. The really interesting part is that the wing standardization and evaluation staff reviewed the hazard report, then commented that the aircraft commander had done a fine job moving the aircraft, and that in no way was safety jeopardized. That answer was reviewed and signed by the commander. Supervisory error? We had to buck it to higher levels to get a more satisfactory response.

Capt Edward C. Phoebus,
435 TAW/SEF
Rhein-Main AB, Germany

*** Sometimes the system isn't as responsive as we would like it to be, but, as you point out, persistence can eventually result in getting something fixed.**

**Smoke Screen**

Not long ago two MAC publications discussed the never-ending battle between smoker's rights and the rights of non-puffers to a breath of fresh air. "Smoke Signals," on page 30 of the October *Flyer* pointed out the dangers of smoking to the aviation community. *MAC Aircrew Newsletter,* on page three of the July-August issue, emphasized in an item titled "On the Line" that pilots may not prohibit smoking on their planes unless "safety of the aircraft" is at issue. These two articles appear to be saying two different things to our pilots.

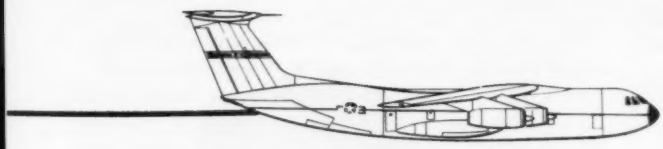
Those crewmembers who smoke are allowed to create a hazard by degrading their physical well-being, yet we go to great lengths to insure they receive proper crewrest, etc. If an individual can't make it through a maximum crew duty day without a cigarette, he is an addict and should be grounded until he has taken the cure. A crewmember who becomes irritable and irrational because he needs a nicotine "fix" is a hazard to safe flight and creates a further hazard by annoying and irritating other non-smoking crewmembers around him. We in MAC and the USAF need to get our act together and not limit a pilot's authority to prohibit smoking in the restrictive confines of his aircraft.

Capt Thomas K. Betts
60 MAW/SEF
Travis AFB, California

*** We at *The MAC Flyer* can't provide answers for the editorial position taken on smoking by the *Aircrew Newsletter.* Our position, however, has consistently been against smoking in the cockpit for the kinds of reasons you mention in your letter. At the moment there seems to be a standoff between those who feel they have a right to smoke anyplace they wish, and those who feel their right to breathe free is being infringed upon, especially in confined work areas such as cockpits or even small offices. How this situation will be resolved is anybody's guess at the moment, but until it is—or until the *Flyer* is dominated by pro tobacco-editors—*TMF* will continue to emphasize the undesirable aspects of smoking while flying.**

**Stereotyped Fanny?**

I wish to say that I think your writers must be some of the best. They make the business of the military sound interesting. My main reason for writing, however, is in criticism of a drawing which appears on page 28 of the October issue. It depicts a blond female sitting at a typewriter. This I feel perpetrates the attitude that this is



what women in the military do. Though traditionally women have been in supportive roles in both military and civilian communities, they now hold primary positions of which they can be proud. Furthermore, men have also held these same supportive role positions in the military, but are seldom depicted in such fashion. Stereotyping should be abolished in the military. I have been a jet mechanic in the Navy for over six years, and through the knocks and hard times I have learned to laugh at myself and sometimes at being a woman in the military. I am no longer a radical "libber" because I feel that most libbers take their stand too seriously. But, I did feel an instant sense of anger when I saw your drawing, and I would appreciate a response to my letter.

AD2 Meredith A. Reid, USN
Patuxent River NAS, Maryland

**✈ Glad to respond, Meredith. How can you accuse us of "stereo typing" when there's only one typewriter in the illustration? Seriously, though, the drawing to which you refer is of "Fanny," a *TMF* character of long standing whose job has been to introduce the feature "Quick Stoppers" each month. If you had the chance to peruse several back issues of the *Flyer* you would find she has been portrayed in a number of non-traditional and varied situations doing everything from chopping wood to raising the flag. Fanny's activities are usually related to a seasonal theme, but on occasion we employ her to illustrate one of the "Quick Stopper" items. That was the case in October. Taken in context, we feel Fanny adds a desirable element of appeal for our primary audience, and we believe she is depicted in enough varied roles each year to avoid perpetuating a stereotyped image.**

Son of Drifter's Reef Lives

I am referring to a picture of the "Drifter's Reef" Bar on Wake Island which appeared on page nine of the August 1980 *Flyer*. According to the caption, the Drifter's Reef now exists only in the memories of the MAC flight crews of the 1950s and 1960s. Please be informed that "The Reef" is still very much alive and has never been closed in the 30 years that I have intermittently propped up the bar there. The joint still jumps during "transpac" movements and other occasions involving planned or involuntary layovers, and war stories of three conflicts may still be heard, with the "discount factor," as always, inversely proportional to the stimulation achieved by the raconteur.

Bill Oliver
Wake Island
Mid-Pacific Ocean

**✈ One evening, after a long and exhausting sortie across the pond, we arrived at Wake and the whole crew suffered the trauma of finding only a bare spot on the lagoon beach where the battered but popular old Drifter's Reef had formerly stood. Because of that experience, I feel fairly safe in sticking to the idea expressed in our cutline regarding the status of that once noble edifice. I will concede that a newer, slicker, air conditioned version of the Reef was opened at the same time as the old saloon was demolished, but it certainly lacked the original mid-pac watering hole's atmosphere and flavor. Perhaps with the passage of time and a couple of typhoons the new Reef has taken on some of the patina of the old one, but it was still quite sterile and uninviting by comparison when I last saw it several years ago.**

# Flying the Morning After

**Those who think that a good night's sleep will restore the average MAC crewmember to normal, razor-sharp keenness after imbibing bountifully in the bubbly may be in for a real eye opener.**

by Leon M. Wise, Ph.D.
Heidelberg College
Tiffin, Ohio

Experiments with alcohol as a variable in flight safety were first conducted at the Aviation Psychology Laboratory at Heidelberg College over 10 years ago. In those first tests we used a static single-engine jet flight simulator and a .08 percent blood alcohol level (not considered an intoxicating level by many states). Almost without exception our subjects exhibited very serious errors of omission.

These errors, had the aircraft been real, frequently would have resulted in fatal mishaps, and at least would have resulted in placing the plane and its occupants in potentially dangerous attitudes and situations. The most interesting finding overall was that the effects of the alcohol were greatest on those "pilots" who, on nonalcohol flights, had shown themselves to be the smoothest, best coordinated, most flawless and coolest under pressure. Although they were relaxed when they first entered the flight simulator, their condition was drastically changed by the alcohol, and performance deteriorated accordingly.

Behaviors such as dumping fuel, inadvertently putting the landing gear down at high speeds, placing the aircraft in unrecoverable attitudes, and attempting to land at 10,780 feet rather than 780 feet (the local field elevation), are but a few examples. However, so that these findings could not be attributed to chance, we repeated the experiment using different subjects—and came up with basically the same results.

A follow-on study then examined the effects of alcohol on errors of omission such as forgetting an important function or overlooking an important detail. For this study we used the same simulator, but were interested in how accurately subjects could follow a preflight checklist. In the case of our simulator, 78 items comprised the checklist which each subject carried on every flight. The task in the experiment was basically the same as that of any pilot—to begin with the first item and, sequentially, perform each function listed, continuing systematically down the list until all items had been completed.

Prior to all flights, the experimenters, without

the knowledge of the subjects, preset three errors:

- Brakes off
- Landing gear handle up
- Altimeter miss-set by 1,000 feet

Close adherence to the checklist should have corrected all the preset errors. Each subject "flew" two test flights, one without alcohol and, about one month later, one with alcohol (.08 percent blood alcohol level). The results thoroughly reconfirmed our theories about alcohol's effect on performance.

- Under the no-alcohol condition, 11 percent of all subjects failed to correct at least one major preset error.
- Under the influence of alcohol, 79 percent of all subjects failed to correct at least one major error.

These "pilots," it should be remembered, were considered legally sober and capable of driving an automobile in most states.

Most of our experiments were conducted in the late afternoon or early evening. We noticed that some of our subjects complained in class the following morning that they still "felt lousy" due to the previous day's flight. A check of the literature showed that the amounts of alcohol ingested should have essentially metabolized easily within 10 hours after drinking. In addition, from perusual of airline publications and military aviation journals, it was also noted that the general rule of thumb for social drinking recommended to pilots was to allow anywhere from eight to 12 hours between "bottle and throttle." It was our thinking at the time that, although there was no longer any detectable alcohol in the blood, hangover effects might still produce a decrease in performance of complex tasks such as the psychomotor responses required in flying. Our most recent study followed this line of reasoning, and we set out to test the so-called "hangover" or residual effects of alcohol. Here, in summary form, are the results.

The subjects were male and female undergraduates. The primary apparatus was a completely instrumented static single-engine simulator formerly used in the instrument training of military pilots.

The subjects already were familiar with preflight, inflight, and postflight checklist responses and the basics of flying prior to the experiment. A six by nine-inch card containing a detailed checklist was given to each subject and all were told to adhere to it religiously. This was followed by an actual "hands on" simulated flight consisting of takeoff, climbout, leveling at altitude, and full-stop landing. When the subjects reached the point where they could successfully handle these fully checklisted "flights" at least three times consecutively without the slighest error, the experiment proper was begun.

After this pretraining, but before the first test flight (nonalcoholic), the following errors were preset by the experimenters:

- Brakes were placed in the "Off" position.
- Landing gear handle was put in the "Up" position.
- Fuel select switch was placed on "Auxiliary Tanks."
- Dive flap switch was put in the "Down" or "Extended" position.
- Wing flaps were set at 50 percent.
- Altimeter was adjusted to 1,000 feet above local ground level.

At the preflight briefing, each subject was told to take off, climb to 6,000 feet, and maintain that for five minutes. When requested to do so the subject was to prepare for a landing and complete the landing at his or her discretion. The main data for the nonalcoholic flights consisted of the number of preset errors each subject failed to correct prior to takeoff.

The only essential difference between the above described flights and the second test flights with alcohol was that 30 minutes before the alcohol flights, each subject was given enough 80-proof vodka mixed with an equal amount of ginger ale to attain a blood alcohol level of .10 percent (the minimum legally intoxicating level in the state of Ohio and many other states).

Finally, a third test flight was given 14 hours after the alcohol flight.

The results were interesting to say the least. During the first test flight (nonalcohol), 10 percent of all subjects overlooked at least one of the major preset errors. For the alcohol flight, 89 percent of all subjects made at least one oversight error. In the additional flight conducted 14 hours after alcohol intake, 68 percent of all subjects *still* overlooked at least one preset error! It is apparent that performance 14 hours after alcohol intake was much more similar to the flight 30 minutes after intake than it was to the first nonalcohol flight.

This evidence suggests that although most, if not all, of the alcohol had been processed through the body during the 14 hours following intake, the residual effects were still contributing significantly to performance deterioration. With this in mind all professional pilots should perhaps rethink, and possibly recalculate, their personal margin of safety, tempering the present "bottle to throttle" rules with these more recent findings.

**Circumstances may change in every mishap, but many of the same cause factors keep reappearing in different combinations, resulting in . . .**

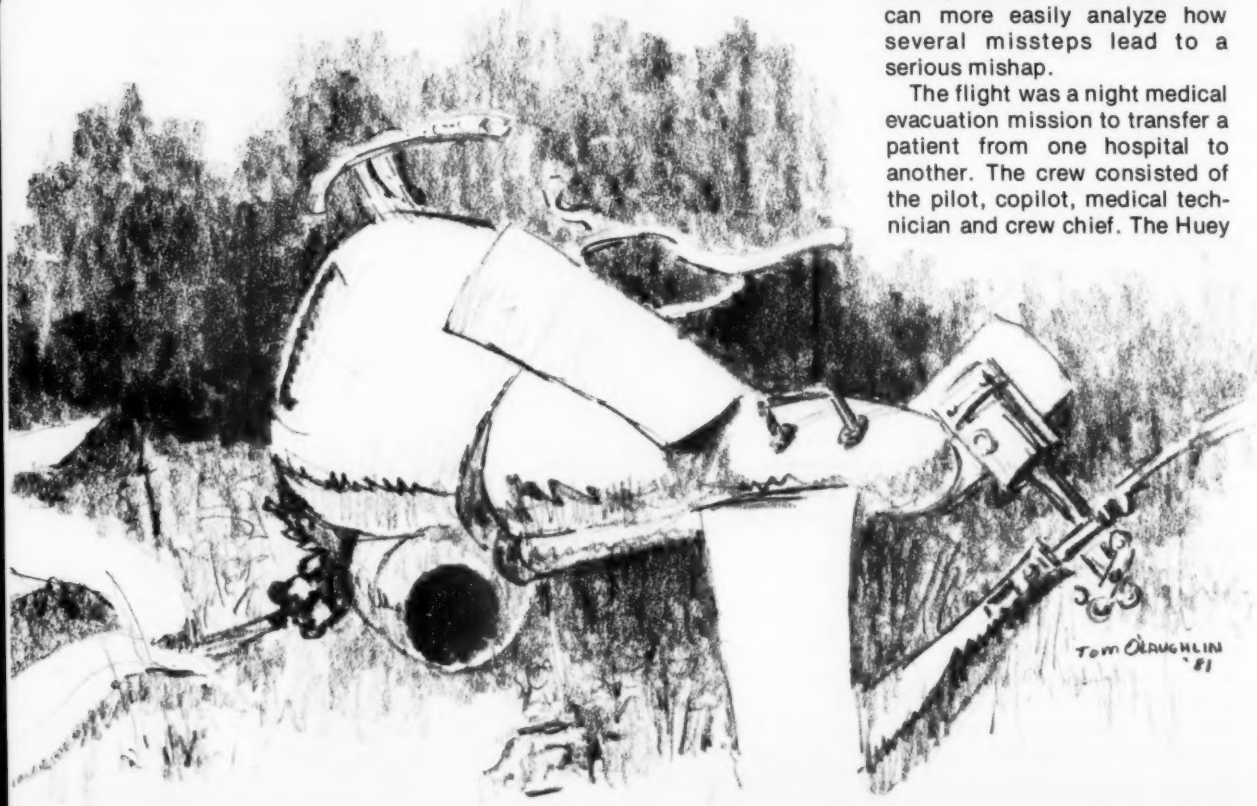
# The "Average" Accident

Have you ever been involved in an accident, even a minor auto fenderbender? Do you recall that gut-wrenching feeling when you realized that events had reached the point where it was now inevitable that something damaging and probably painful was going to happen—that it was too late for you or anybody else to do anything to prevent it? And when the dust settled, how about those agonizing afterthoughts, like maybe if you had done this or that different it wouldn't have happened.

Usually we aren't terribly rational and analytical following an accident, especially a serious one. If we were, we would realize that part of our agonizing is mental self-flagellation for having made one or more bad choices which eventually boxed us in. The important thing to note here is that we nearly always have a choice between several paths which are available on our way to an accident. Although the mishap itself takes only a fraction of a second, it has usually been awhile in the making and is the result of a combination of actions or causes. Some contribute directly, while others add to the problem indirectly.

Let's take a look at a helicopter accident that has been purposely selected because it is not spectacular and didn't result from any novel or one-in-a-million kind of cause factors. The causes are, in fact, the same kinds found in most accidents, and for that reason we can more easily analyze how several missteps lead to a serious mishap.

The flight was a night medical evacuation mission to transfer a patient from one hospital to another. The crew consisted of the pilot, copilot, medical technician and crew chief. The Huey



had already been preflighted, and flight planning and weather briefing were accomplished according to normal operating procedures. The patient and a doctor who was accompanying him arrived for departure, and the takeoff soon thereafter was normal. The night VFR flight was planned for one hour and 30 minutes. Everything appeared to be strictly routine, but already several potential accident cause factors were present. Although the pilot was instrument qualified and familiar with the area, he had failed to maintain instrument proficiency because he intended to leave the service within 60 days. The copilot was newly assigned and only recently rated. This was his first mission. In addition, the pilot elected to fly visually even after receiving the forecast of "questionable" weather (which proved to be not questionable, but just plain bad) at his destination.

Inside the cabin, the crew chief and the medic were helping the doctor administer intravenous fluids and oxygen to the unconscious patient strapped on a litter secured to the aircraft. The doctor was wearing a civilian outfit because the protective flight clothing he had requested was not available. He wasn't even provided a helmet, which meant that the medic had to remove his own headgear to hear the doctor's instructions. In addition, because he had not been briefed, the doctor didn't even know how to use the special safety restraint designed to protect him while allowing him freedom of movement to care for his patient.

The questionable weather continued to deteriorate. Visual reference was now impossible and IMC procedures had to be implemented. After arriving over their destination, the crew aborted their first landing attempt at the hospital helipad, and decided to opt for a pad near a civil airport which offered a selection of instrument approaches.

The crew initiated an ILS localizer approach, but an inoperable ADF made it impossible to get a fix on the outer marker. The maintenance form in the aircraft logbook showed that the ADF had been repaired and was functioning normally. In reality, unauthorized maintenance had been attempted, the problem had not been corrected at all, and improper entries had been made on the forms.

**Suddenly, out of their side windows, they spotted trees and a clump of bushes through the fog bank.**

After a missed approach due to weather the crew set up for a second approach to the airport. By this time the Huey had been airborne an hour and 45 minutes. While the second approach continued, the crew chief and medic unbuckled their seatbelts to try and help the pilots sight the ground. Suddenly, out of their side windows they spotted trees and a clump of bushes through a fog bank, and then caught a glimpse of powerlines and a telephone pole in the beam of the landing light. Before either could even shout a warning, the aircraft hit the wires and crashed two miles short of the runway. Miraculously, despite the severity of the crash, there were no deaths or serious injuries even though the helicopter was destroyed.

Numerous crew and supervisory errors combined to cause this accident. First was the pilot's decision to fly visually after receiving a forecast of questionable visual flight weather at his destination. This was purely a judgment call and his error can be attributed to a lack of confidence in his own instrument proficiency. The investigation also disclosed that the crew failed to check weather conditions in the vicinity of their new destination before diverting, and no weather information was provided by approach control.

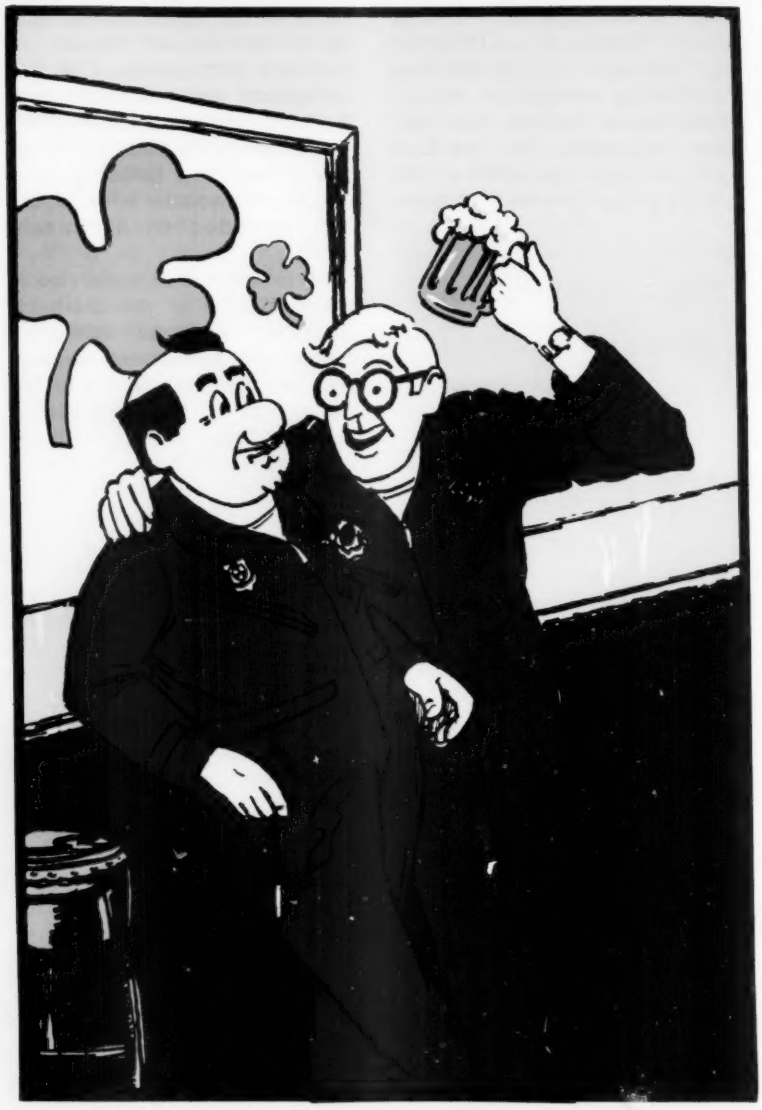
There were also supervisory errors. People in the chain of command assumed standardization and instrument training were being conducted and proficiency maintained. The doctor's escape without serious injury is particularly amazing considering the fact that appropriate protective clothing and headgear were not made available, and he was not briefed on even the simplest internal operations of the aircraft, including such basic measures as securing his seatbelt.

Looking back over the circumstances leading up to this "average" accident with an analytical eye, it is easy to see that it was the result of several factors, all of which were avoidable. The safe operation of an aircraft and the successful completion of a mission are also the result of many factors—the most basic being an absolute, uncompromising professional respect for the safety considerations of every phase of operation by everyone involved.

—Adapted from *Flightfax*

# C.R. TERROR

**C.R. bombs out while "exercising" his nuke loading abilities.**



That was one of the smartest moves I've ever seen you make, boss," commented Blinky as he raised his glass of "green" St. Patrick's Day beer in an exuberant toast.

"I just wish I had thought about giving him a roll of mints when we started this trip," observed the Foxy Field-Grader. "Spending the last six days with young Hamilton Hand as copilot has certainly been a high price to pay for escaping our home-station ORI."

"I was in the scheduling office when the 'Old Man' called Linus and told him to set up this crew," confided Blinky. "He said the commander figured sending Ham with us was the best way to 'cut his losses'."

"He owes me one for this trip then," groused C.R. "Six days on the road with Lieutenant Hand is worse than pulling six-months of bravo alert."

"It's a good thing you had me along," observed the young navigator. "I'll never forget the look on your face when Ham inverted the coordinates for Hickam and the INS started giving you headings and distances to somewhere in Africa."

"I'll have to admit," grimaced the Pompous Pilot, "that there may be some reasonable excuses for the existence of navigators in the cockpit—on occasion."

The next morning an almost unbelievable apparition of an aircrew appeared at the

command post. Due to the aftereffects of the St. Pat's Day celebration, plus Ham's usual inanity, the combined abilities of this Terrorific Trio approximated those of just a single, non-current MAC crewmember of average ability. The chief controller approached the window and cautiously announced, "Major Terror, your crew has been hand picked at random to participate in your home unit's ORI." C.R. flinched as the duty officer continued, "You will depart here on schedule at 1700 hours 'Zee,' and fly to Stockpile AFB where you'll pick up a load of *simulated* nuclear weapons for delivery to Southland AFB. The TAC IG is conducting an ORI there, and your cargo is needed for the air defense unit's operation. After you drop off the weapons, you may depart for home. The message says this is a simulated emergency nuclear airlift mission, and I am to issue you simulated weapons for security."

"Last of the good deals," moaned Blinky.

Rallying to the challenge, the Bibulous Buffoon boasted, "No sweat! We'll put on a good show for the wing. It'll be easy, just follow a little book called the Dash 16 and we've got it made."

"How'd you know that?" asked the doubting navigator. "You slept through the last nuke training session."

"Blinky m'lad, I've hauled more nukes in C-124s than you have total flying time," the Ace of Airlift assured. "Now let's see if we can find a copy of the right book."

Offering a sudden insight, Hamilton blurted, "The Dash 16 is in the mission kit and there's a new chapter in 55-141 about nuke airlift."

"How'd you gain those gems of wisdom, lieutenant?"

"Easy, major, I'm the squadron pubs officer."

"Well I don't remember seeing a chapter about nukes in my 141 book," challenged C.R.

"I put it in your 'V' file a month ago, sir," proclaimed the bumbling brown bar.

"You knew I'd never find it there!" protested C.R. "But never mind that for now, we'll just use the good ol' Dash 16 and everything will work out okay."

Sending Ham to order a jug of coffee, C.R. and Blinky quickly filed a flight plan and checked the weather. In record time, they all were greeting Sergeants Torque, Crescent and Downs at

the Starlifter. Engine start and taxi out went normally because C.R. had handed Hamilton the mission kit and asked him to find the nuke loading tech order. This chore kept the world's loosest lieutenant so busy that he didn't even notice the airplane had moved until C.R. lined the C-141 up on the runway for takeoff.

When they were cleared, C.R. gently placed Ham's hand on the gear handle and repeated his instructions not to do anything until he commanded, "Gear up." The Ambient Aviator then glanced back at Sergeant Crescent in the jump seat and winked. She gave an affirmative nod, meaning that she remembered her orders to break Ham's arm if he tried to raise the gear before the aircraft was safely airborne.

C.R. flew a smooth takeoff and his right-seater performed on cue. With Max reading the checklists, Blinky working the INS, C.R. talking on the radios, the autopilot flying the aircraft, and Hamilton busy with a new roll of Lifesavers, their flight progressed smoothly.

Thumbing through the tech order brought back brief flashes of nuke loading training endured over the decades by MAC's most senior major. "First we need a courier to sign for the cargo," recalled C.R. "Ham, you can do that." A grin of blissful ignorance spread across the right-seater's face. "And we'll use the two-person concept," continued C.R., "Sergeant Downs, you watch Sergeant Torque, who'll watch Sergeant Crescent. I'll watch Blinky, and he can watch Ham—Ham can just watch."

"How 'bout the Dash Nine?" asked the knowledgeable loadmaster. "It's got all the instructions we need."

"No, no, sarge. That's for the normal trash we haul around. For these weapons we use the Dash 16, just like in training," corrected the Misguided Major.

"Whatever you say, sir," recanted Sergeant Downs.

Following a procedure for gear lowering similar to the gear-up-after take off routine, Lieutenant Hand assisted C.R. with an uneventful arrival. Soon a follow-me truck led the Starlifter to an isolated parking spot nearly surrounded by blue vehicles.

Descending the crew steps, C.R. was met by three officers. "So where's the nukes?" he asked, figuring an air of competence was his best attack.

"Over there, major," answered a tall, grim captain gesturing toward some tarp-covered trailers.

"Oh, of course, covered for security, eh?" bluffed the Rotund One who hadn't recognized the carriers because they didn't look like the shapes used in training.

"Sort of," affirmed a spiffy Lieutenant Colonel. "Colonel Checkov, MAC IG," he introduced, extending his hand to C.R. who shook it somewhat reluctantly. "And this is Major Falcon from the TAC IG. We'll observe your loading."

"Yes sirs," responded the terrified Terror as he saluted smartly, turned and beat a hasty retreat to the relative safety of the C-141's flight deck.

"You look awfully pale, Major. You okay?" asked Sergeant Crescent.

"There's more inspectors out there than fleas on a dog's back. We're going to have to put on a really good show to get through this one."

"No problem, sir," assured Sergeant Downs placing a confident hand on his trembling AC's shoulder. "Why don't you and the copilot go sign for the cargo, file a flight plan, and do all the other important stuff at ops? Lieutenant Donivan, the engineers and I can take care of the loading."

"Exactly the plan I had in mind," blustered the Pudgy Pilot as he turned toward the door. "Be sure to read 'em the right checklist, Blinky," he called back.

"You can count on us, sir," assured the navigator with a confident smile. Once C.R. and Ham were out of sight, Blinky turned to Ty and directed, "It's all yours, Sarge. Use the Dash Nine or whatever you want, but let's get that stuff loaded before those two get back."

After Lieutenant Hand signed for custody of the simulated nuclear weapons and received a fistfull of paperwork from the shipper, the world's most dangerous duo were on their way to base ops to file the flight plan.

Out at the Starlifter, Ty Downs worked with the other crewmembers and efficiently winched the nine weapons carriers aboard. By the time the Rotund One and his understudy came waddling back across the ramp, Sergeant Crescent was closing

the petal doors, and Downs and Torque were going over the Form F. Soon C.R. brought the fanjets to life and Blinky loaded the coordinates for the next leg of their mission into the INS. Hamilton was rendered semi-inoperative when the crafty AC handed him the sheaf of papers that went with the load and requested, "Make sure everything is there, will ya?"

With the right-seater occupied for the duration, the mission moved smoothly despite minor Terrorisms. After starting the descent, however, things got a bit testy when Blinky had to guide them around several adolescent thunderstorms—the kind that grow so fast you can actually see them getting taller—before they finally got everything squared away for an ILS approach. Despite a horizontal windshear on final, C.R. flew an admirable approach and landing. Following tower's instructions, he contacted ground control as the Starlifter cleared the active.

"Good afternoon, MAC 534, hold your position; a follow-me will assist in parking," were the controller's polite instructions.

"No need for that, ground," C.R. responded. "We're familiar with the airport. Tell the truck to catch us later." He then eased the throttles forward and announced to the crew, "Must be why they picked us for this mission. I brought so many loads of nukes in here in Ol' Shakeys that I could find the hot cargo area blindfolded."

The C-141 headed toward the south end of the ramp where the newly-constructed SAC alert "Christmas tree" was located. Four security police vehicles and a transient alert truck followed in hot pursuit. They failed to get the Ambient Airlifter's attention until the SP's step van courageously pulled in front of the Starlifter and carefully slowed to a stop. C.R. stomped on the brakes and the gray-and-white airlifter bobbed to a halt. Six security policemen swarmed out of the truck and pointed their automatic weapons at the cockpit.

"What the heck kind of deal is this?" exclaimed the Field Grade Fumbler. "Sergeant Downs, you're cleared out the crew entrance door. Find out why those clowns stopped us."

Ty reluctantly opened the door and descended the steps to meet a burly chief master sergeant security policeman.

With unbelievable restraint, the chief explained that if the aircraft continued forward another 25 feet it would enter the SAC restricted area and would have to be stopped "by use of appropriate force." However, if the pilot would follow the transient alert truck to the TAC interceptor area, then they could proceed without any difficulty. Ty thanked the chief and returned to the aircraft where he conveyed the police NCO's request with unrestrained enthusiasm to his Errant AC. C.R. gave a sheepish thumbs up to the policemen and taxied the Starlifter behind the follow-me truck.

After trucking along about two miles to the north end of the ramp, the C-141 was blocked in next to a squadron of F-4s. Before the fanjets finished winding down, several people scrambled onto the flight deck and began firing questions, "Who's the AC?" "Where the heck were you going?" "Can you get unloaded in ten minutes?" "What's your home base?" C.R. unstrapped and began to stand up when silence suddenly fell over the group. A tall, square-jawed colonel pushed his way through the crowd. Sweat broke out on the Pudgy Pilot's brow and he sank back into his seat.

"Terror!" The colonel's voice reverberated through the cockpit. No doubt about it, shuddered C.R., it's him, Colonel Nicholas Ripper, the ultimate inspector.

The Bulgy Bumbler stood up slowly, "Yes, s-s-sir. Major Terror at your service," he bleated with a feeble grin.

"You got a good loadmaster, major?" asked the overpowering 0-6.

"The best," affirmed C.R.

"Then let him unload this airplane. You and your copilot come with me."

Oblivious to what the colonel could possibly want, Lieutenant Hand happily followed the older officers toward the interceptors' alert barn. Blinky and Sergeant Downs took charge of the off-loading while the local security police safeguarded the cargo. The simulated nukes were handed over to the TAC folks in record time and the Starlifter was buttoned up for a probable RON. Blinky then sent the enlisted crewmembers to get some chow, and headed for the metal hanger to find his AC.

He met C.R. and Ham in the hallway outside the IG team's work center. The Portly Pilot

was shuffling along, head down, with his sorrowful sidekick following a pace behind muttering, "I don't understand, I just don't understand."

"We got the plane unloaded without a hitch, boss," reported the young navigator. "Do you think the DO would give us a half-hour crew duty day extension so we could get home?"

"I don't think the DO would give us a time hack, Blinky," responded C.R. dolefully. "After what Ham and I have been through, I think we'd better RON and take a fresh look at things in the morning."

"That bad, huh?"

"Yeah, that bad. The wing's got to do the nuke loading all over again."

"How could that happen?" protested Blinky. "We picked up the nukes and delivered them without a scratch. And we were only five minutes late."

Ham added, "I just don't understand."

"What don't you understand, Ham?" soothed Blinky.

"Why the colonel wanted to give the major a sword. He was so mad at us I can't imagine him giving the boss any honors."

Blinky looked puzzled. The Paunchus Pilot tried to explain, "It's no award, guys. The colonel said the TAC IG filed a 'Dull Sword' on us. He was pretty upset because we didn't call when we were 30 minutes out, but I explained that away with having to dodge those thunderstorms. And I tap danced my way around taxiing to the wrong end of the field—told him my gyro compass died and I thought I was going north all the time. But it was our flight plan that did us in," admitted C.R. "When I told Ham to check it over and file it, I had no idea that he would add anything to it." The Mystified Major handed Blinky the carbon copy of the DD-175 from the mission kit. Printed boldly in Ham's second-grade scrawl was a load message in the remarks section: "We're carrying nukes."

Blinky nodded his head slowly in agreement, "That would do it all right."

"But the colonel said we set a world's record," contested Ham.

"Yeah we did," agreed C.R. "We were the first crew ever to be reported for "safety and security violations due to *gross incompetence* in the handling of nuclear cargo."

# QUICK

## Got A Minute?

It only takes about *half* a minute for a thunderstorm to ding up your airplane so it looks like it was attacked by a band of ballpeen-hammer-wielding maniacs. Nearly $30,000 worth of damage was done to a CT-39 while it was making a quick penetration through a European thunderbumper. Quarter-inch to half-inch hailstones left their imprints on the engine cowls, number-one-engine nose dome, left and right horizontal stabilizer tips, radome, taxi lights, both wing slats and fiberglass wing tips. The crew got off easy, considering that flying through a heavy thunderstorm caused both engines on a stateside commercial jetliner to choke up on hail and rain and flame out, resulting in a fatal crash. A C-141 crew also paid the ultimate price for confronting a thunderstorm in England when the extreme turbulence inside it literally tore their Starlifter to pieces. We seem to have to keep relearning the hard way that it just doesn't pay to fool around with these illegitimate offspring of Mother Nature, no matter how inviting the apparent ease of a shortcut or a quick penetration may appear. It's one gamble you can't afford to lose.

## Heavy Breathing Won't Help, Either

Passing through 14,000 feet on climbout, the KC-135's cabin pressurization warning light illuminated, and the crew went on oxygen. They continued to have problems with the pressurization system during the climb, and when it looked like the cabin altitude was going to exceed 25,000 feet after level off at cruise altitude, a descent back to FL 250 was requested. Before reaching 25-grand, the pilot became hypoxic and the copilot took control of the tanker and secured a further descent to 15,000 feet. At that altitude, the left-seater revived, and checking his regulator, he found it wasn't indicating any flow when he breathed. The reason, it turned out, was an ill-fitting mask which permitted the pilot to inhale mostly ambient cabin air. Had the pilot preflighted his oxygen equipment thoroughly, he should have noticed a weak to intermittent, or even nonexistent, indication of flow on the oxygen regulator "blinker." It is easy to become complacent about our personal oxygen equipment in most of today's cozy, pressurized transport aircraft, because only on rare occasions are we inconvienced to the point of needing supplemental oxygen. As the above example shows, however, it can and does happen, and a single oversight like an improperly fitted and preflighted oxygen mask can put a crewmember out of commission in a hurry.

# STOPPERS

## Unauthorized Control Snubber

Usually it's the absence of an engine which causes a pilot problems; in this case the *presence* of part of an outboard motor that a pilot had onboard his light airplane caused a fatal crash. Moments after his Cessna lifted off the runway, eyewitnesses observed that it rotated to an extremely nose-high attitude and began "climbing at an unbelievable angle of attack." Some estimates of the nose up attitude were as high as 60-degrees, and an airline captain who was one of the witnesses said, "I knew that he either had to level off, or stall, if he held the aircraft at that angle of attack." At about 150 feet above the runway, the laws of aerodynamics and gravity had been violated so blatently that the right wing stalled and the plane nosed over and plunged straight into the ground. The pilot and two of his passengers were killed. The lone survivor recalled hearing the pilot call out, "We're not going to make it," and noticed an increased engine roar before impact.

Investigators probed the wreckage and found that everything was operating normally in the Cessna's power plant prior to the crash. Checking further, they found part of an outboard motor lodged on top of the control cables in an area behind the baggage compartment. Although the component itself (the outboard's lower drive shaft) wasn't heavy enough to throw the center of gravity out of limits, it shifted at takeoff and wedged between the radio rack and the control cables, jamming them tight enough to prevent the pilot from flying the airplane.

As the NTSB report pointed out, "Proper preflight. . .includes a 'full throw' of all controls. . . to test for freedom of movement. It also includes securing all objects loaded in the cabin or baggage areas." With a couple of near tragedies which have occurred from shifting loads in helicopters and heavy haulers recently, this is a lesson we would all do well to remember, no matter what kind or size of airplane we fly.

## Name of the Game

A somewhat philosophical baseball player named Yogi Berra once observed, "The game's not over 'till it's over." Normally an aircraft sortie is pretty much wrapped up once the engines are shut down—but that may not always be the case, as one C-5 crew found out. The Galaxy blocked in after a local trainer and all the engines were caged. As the checklist was being finished the scanner observed smoke and flames coming from the rear of the number two turbofan. He notified the pilots and they activated one firebottle, and then a second firebottle, and also discharged nitrogen into the wing. When all these measures failed to bring a halt to the blaze, they abandoned ship and left the firefighting to the experts in asbestos who had arrived on scene by then. The conflagration was promptly brought under control, and an examination of the engine turned up an internal failure which occurred in the number two jet *after* it was shut down, causing it to burst into flames. Just goes to show that it pays to stay alert around an airplane even when the wheels are chocked and the wind machines have been turned off. To paraphrase Yogi, your crew responsibilities for your craft aren't over until they're over and you've departed the flight line.

# Foolish Patient

It has been said that a man who attempts to act as his own lawyer has a fool for a client. In a similar vein, it could be said that a flyer who attempts to be his own flight surgeon has a fool for a patient, as the following episode once again proves. A flight engineer had been suffering along with intermittent sinus problems for about three weeks. Not wanting to go DNIF, he proceeded to dose himself periodically with a nasal decongestant and keep pressing. While on a local training mission, his "temporary relief" expired and he experienced a sinus block which was so excruciating that it caused him to start hyperventilating on the spot. The crew thought he was having some kind of a heart attack, so they declared an emergency and landed ASAP. A flight doc thoroughly checked out the flaky flyer and pronounced him medically fit except for his sinuses, and not in immediate danger of cardiac arrest. He didn't escape though, without getting rebriefed on the negative ramifications of those old twin bugaboos: flying with a cold or sinus problem and prescribing medication for yourself without a sheepskin and an AFSC authorizing you to do so.

# *Frosted Jolly Green*

During one mission an HH-3E crew experienced two icing incidents. The Jolly Green landed atop a 5,000-foot mountain to deplane a ground party to pick up the remains of three victims of an aircraft crash. While waiting for the technicians to complete their rather unpleasant task, the crew stopped the rotor, but left the engines running. A little over an hour later, the pilot noticed some weather moving in and recalled the ground party. With the searchers on board, the rotor was engaged, but at about 60 percent torque a loud pop occurred and the number two engine wound down. The crew shut both engines down and noticed a small amount of ice on the main rotor blades.

They contacted their home base and consulted with maintenance and operations experts. Deciding the helicopter had probably not been damaged, they estimated that after a thorough check of the engines, it would be safer to start up again and bring the mission home. After carefully checking the engines for FOD and removing the ice from the rotor blades, the crew started the engines and engaged the rotors. The helicopter power systems passed all normal before-takeoff and hover checks, and the commander authorized a one-time flight back to the base.

At takeoff time the weather was IMC with blue sky showing through the thin obscuration above the H-3. Using maximum power, the pilot lifted the helicopter off and pointed it down hill. Within seconds after takeoff the crew noticed a distinct loss of lift which gradually increased until the Jolly Green was moving forward at 80 knots with a 1,000 fpm rate of descent. This descent kept the helicopter in the clouds where the outside air temperature indicated about minus-five-degrees Celsius. After slowing to tank-jettison airspeed and reducing the rate of descent, the pilot jettisoned the auxiliary fuel tanks. With its gross weight reduced, the helicopter was able to climb into VMC, where the rotors started shedding ice.

In both cases the helicopter crew had experienced icing, but had encountered two different types. While sitting on the mountain in the cold, damp atmosphere with the jet engines running, they had built up enough induction ice in the number two engine to cause it to flame out. During the later IMC departure they had encountered structural (rotor blade) icing from flying through moisture in below-freezing temperatures. Fortunately, they overcame both and returned safely to their home base.

# AFTER DEADLINES

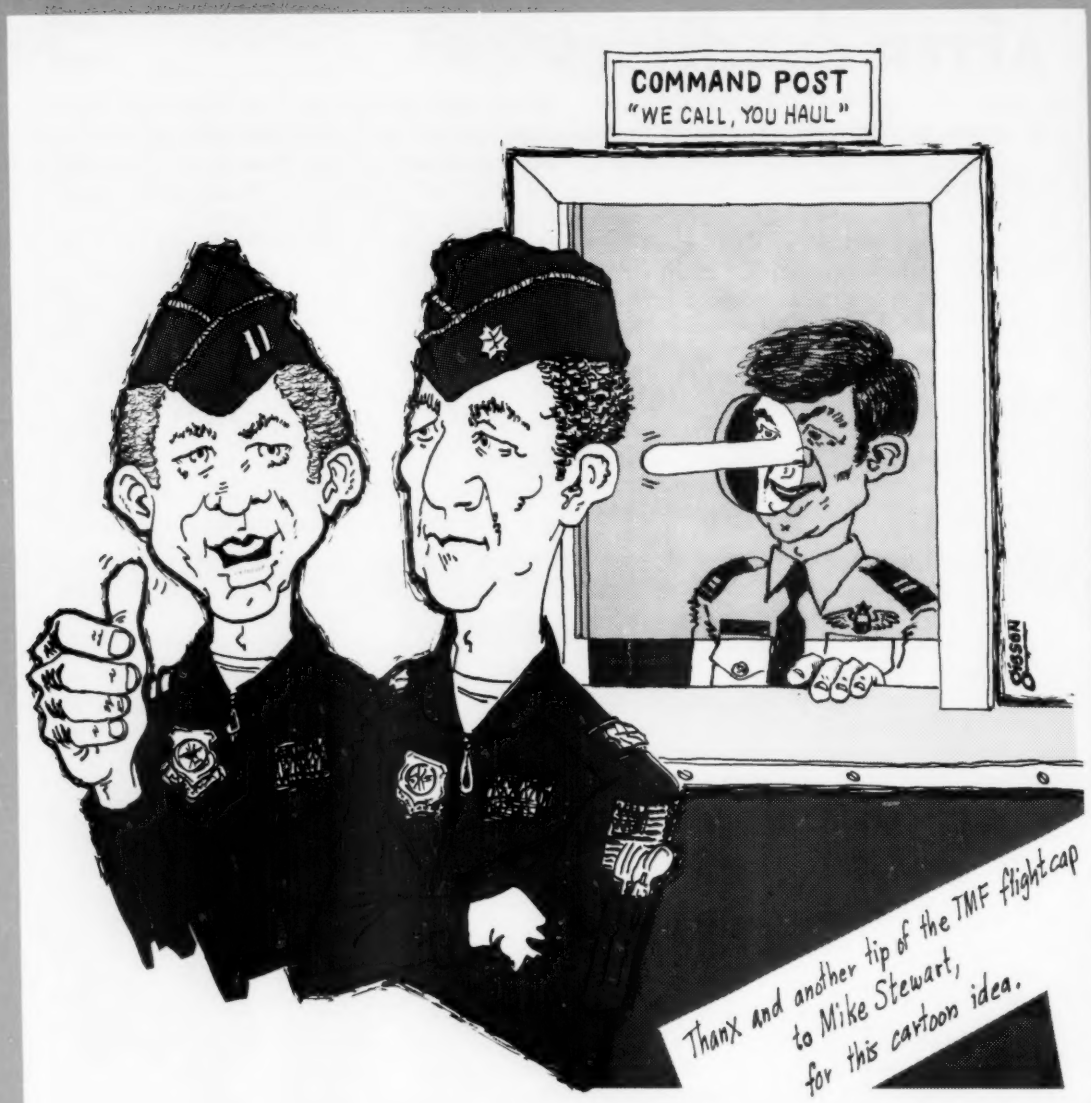
A MAC RESERVE AIRLIFT CREW WAS RECENTLY CREDITED WITH SAVING a Navy S-3 and five crewmembers. The 446 MAW (Assoc) crew from McChord AFB had taken off from Diego Garcia enroute to Clark AB, Philippines, when they received a call that Diego tower had lost contact with the Navy aircraft. At last report, it was somewhere southwest of the atoll with both navigation systems inoperative. Capt Jim Peterson, piloting the C-141B, realized they were the only airborne aircraft in the general area, so he altered course and managed to establish radio contact with the lost Navy twin-jet. The McChord crew, after determining the Navy bird was too low on fuel to make it back, requested tanker support. A transient KC-135 was located and launched, along with another S-3 from Diego Garcia. The MAC airlifters directed them to the scene and the tanker closed in for a hook up. The pilot of the desperate S-3 later estimated there was only about 300 pounds of fuel remaining when he plugged into the tanker. *TMF* salutes the 446 MAW crew for their life-saving exploit.

¿HABLA USTED ESPANOL? If you do and you are an H-1 helicopter pilot, then Detachment 9, 67 ARRS, at Zaragoza, Spain, would be very interested in having you on their team. Spanish language capability would come in extremely handy when the rescue unit works with its Spanish rescue counterparts during searches and combat exercises. Although bilingual ability in itself is not a prerequisite for the job, it should make a great assignment even more rewarding.

MAC RECENTLY OPENED AN INTERNATIONAL PASSENGER "GATEWAY" at Lambert International Airport in St. Louis. Military passengers destined for Japan and Korea can now board Transamerica Boeing-747 military contract flights in St. Louis instead of traveling all the way to the West Coast. Officials estimate between 70,000 and 80,000 passengers a year will arrive and depart through the facility, saving millions of dollars in travel costs each year and reducing travel time to and from the Far East.

A CHANGE FOR THE BETTER. In last month's "After Deadlines," we reported that preliminary data indicated MAC's 1980 Class A flight mishap rate (0.576 per 100,000 hours) was the lowest in eight years. We are happy to report the final figures are in and our 1980 Class A rate was actually the lowest in 12 years, and we had the lowest *number* of Class A flight mishaps (four) in the command's history. For a complete rundown on 1980's mishap statistics, see the April *Flyer*.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1980-765-017/11




Colonel, for some strange reason. I don't believe a word that guy just told us.